REMARKS

Claims 1-7 remain in this application. Claims 1, 5 and 6 have been amended.

Claim Rejections Under 35 U.S.C. 103(a)

The Office Action rejected claims 1 – 7 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Publication No. 2002/0176131 to Walters et al (the Walters reference) in view of U.S. Patent Publication No. 2001/0046207 in view of Isonuma et al (the Isonuma reference). However, the Office Action has failed to provide a prima facie case of obviousness over the cited references for the following reasons.

Independent Claim 1 and Dependent Claims 2 through 4

Independent claim 1 states, "at least one SONET add/drop multiplexer being outfitted so as to support SONET unidirectional, path-switched rings protection with Payload Defect Indicator - Path codes; a working WideBand switch fabric coupled to said at least one SONET add/drop multiplexer, said working switch fabric receiving a working signal from a first interface on said at least one SONET add/drop multiplexer, said working signal and working payload, said working switch fabric switching said working signal so as to generate a working switched signal and to generate a working Payload Defect Indicator - Path code and working switched payload, and providing said working switched signal to a second port on said at least one SONET add/drop multiplexer; a protect WideBand switch fabric coupled to said at least one SONET add/drop multiplexer, said protect switch fabric receiving a protect signal from a third interface on said at least one SONET add/drop multiplexer, said protect signal and protect payload, said protect switch fabric switching said protect signal so as to generate a protect switched signal and to generate a protect Payload Defect Indicator - Path code and protect switched payload, and providing said protect switched signal to a fourth port on said at least one SONET add/drop multiplexer; wherein said at least one SONET add/drop multiplexer selects between said working switched payload and said protect switched payload to send to a client based upon said working Payload Defect Indicator - Path code and said protect Payload Defect Indicator - Path code." As stated in paragraph 27 of the application, the present invention allows standard

SONET add/drop multiplexers to provide both standardized customer interfaces to a cross-connect system and switch fabric protection. A network operator could even utilize pre-existing SONET add/drop multiplexers in a network designed by different manufacturers to create the cross-connect system. The only requirement would be that the SONET add/drop multiplexers support SONET UPSR protection with PDI-P codes.

The Walters reference teaches away from this type of cross-connect in claim 1. The Walters reference discloses an all optical cross-connect that does not convert the optical signal to an electrical signal for any type of analysis of the underlying data signal or SONET codes. As stated in paragraph 70 of the Walters reference:

> "An inventive all optical configurable switch (i.e., network node or OTS) can operate as an optical cross-connect (OXC) (also referred to as a wavelength cross-connect, or WXC), which switches individual wavelengths, and/or an optical add/drop multiplexer (OADM). The switch is typically utilized with a Network Management System (NMS) also discussed herein. [0071] As an all-optical switching system, the switch of the present invention operates independently of bit rates and protocols. Typically, the all-optical switching, between inputs and outputs of the OTS, is achieved through the use of Micro-Electro-Mechanical System (MEMS) technology. Moreover, this optical switch offers an on-demand .lambda. switching capability to support, e.g., either SONET ring based or mesh configurations."

Thus, it is clear that the Walters reference discloses an all optical switch with MEMS switching fabric that is independent of bit rates and protocols.

The Isonuma reference fails to add to the Walters reference to suggest the requirements of claim 1. The Isonuma reference merely describes typical UPSR protection configurations for line interfaces in a SONET network. As stated in the Isonuma reference in paragraphs 14 and 15:

> "[0014] In accordance with the ring architecture, ADM transmitters 10a-10d of the kind depicted in FIG. 17 are connected in the form of a ring in the manner

> shown in FIG. 18. If a certain transmission path develops a failure or suffers a decline in quality, signals are transmitted in a direction that avoids this transmission path, thereby allowing communication to continue and assuring reliability and quality. [0015] FIG. 19 is a diagram useful in describing a UPSR (Unidirectional Path Switched Ring), which is one transmission line switching system available for SONET ring networks. A transmit node A on a synchronous multiplexed transmission line constructing the ring sends a signal in two directions, and a receive node C selects either of these signals to effect path switch or switch-back. In (a) of FIG. 19, the node A sends an input signal in two directions, namely (1) a direction that leads to node C via a node D and (2) a direction that leads to node C via a node B. The route that is usually selected is referred to as a "default path". If a failure develops in the transmission path from node A to node D, as shown in (b) of FIG. 19, during communication via the default path, as a result of which communication can no longer take place, node C selects the signal that arrives via node B, thereby allowing communication to continue. Such a path not selected normally but only in the event of a failure in the default path is referred to as a "non-default path". The functional element that performs such path switching is referred to as a "path protection switch".

The reference in paragraph 163 of the Isonuma reference cited in the Office Action to PDI-P codes was merely to this above described type of UPSR switching for SONET ring networks. In addition, the description in paragraphs 20 -22 of the Isonuma reference to the STS cross-connect unit 10A nowhere describes the requirements, *inter alia*, of claim 1 of, "a working WideBand switch fabric coupled to said at least one SONET add/drop multiplexer, said working switch fabric receiving a working signal from a first interface on said at least one SONET add/drop multiplexer, said working signal and working payload, said working switch fabric switching said working signal so as to generate a working switched signal and to generate a working Payload Defect Indicator - Path code and working switched payload, and providing said working switched signal to a second port on said at least one SONET add/drop multiplexer; a protect WideBand switch fabric coupled to said at least one SONET add/drop multiplexer, said protect

switch fabric receiving a protect signal from a third interface on said at least one SONET add/drop multiplexer, said protect signal and protect payload, said protect switch fabric switching said protect signal so as to generate a protect switched signal and to generate a protect Payload Defect Indicator - Path code and protect switched payload, and providing said protect switched signal to a fourth port on said at least one SONET add/drop multiplexer; wherein said at least one SONET add/drop multiplexer selects between said working switched payload and said protect switched payload to send to a client based upon said working Payload Defect Indicator - Path code and said protect Payload Defect Indicator - Path code.

Furthermore, the combination of the Walters reference and the Isonuma reference fails to suggest the requirements of the claims. First, the combination would be inoperable since the Walters reference discloses an optical configurable switch (i.e., network node or OTS) can operate as an optical cross-connect (OXC) (also referred to as a wavelength cross-connect, or WXC), which switches individual wavelengths, and/or an optical add/drop multiplexer (OADM) while the Isonuma reference discloses an electrical STS cross-connect unit 10A for switching electrical signals at the STS or VT level. Second, even if combined, neither reference discloses or suggests using standard SONET add/drop multiplexers to provide both standardized customer interfaces to a cross-connect system and to switch fabric protection.

Independent Claim 5 and Dependent Claims 6 and 7

Independent claim 5 states, "accepting an input client signal, said input client signal comprising payload, in at least one SONET add/drop multiplexer; sending said payload to a working and a protect switch fabric; switching said payload and generating said Payload Defect Indicator - Path codes in each of said working and protect switch fabrics toward said at least one SONET add/drop multiplexer; receiving switched payload and said Payload Defect Indicator - Path codes from each of said working and protect switch fabrics at said at least one SONET add/drop multiplexer; analyzing said Payload Defect Indicator - Path codes and selecting said switched payload from either said working or said protect switch fabric as a working client payload based upon said analysis."

The Walters reference teaches away from this type of method in claim 5. The Walters reference discloses an all optical cross-connect that does not convert the optical signal to an

electrical signal for any type of analysis of the underlying data signal or SONET codes. As stated in paragraph 70 of the Walters reference:

> "An inventive all optical configurable switch (i.e., network node or OTS) can operate as an optical cross-connect (OXC) (also referred to as a wavelength cross-connect, or WXC), which switches individual wavelengths, and/or an optical add/drop multiplexer (OADM). The switch is typically utilized with a Network Management System (NMS) also discussed herein. [0071] As an all-optical switching system, the switch of the present invention operates independently of bit rates and protocols. Typically, the all-optical switching, between inputs and outputs of the OTS, is achieved through the use of Micro-Electro-Mechanical System (MEMS) technology. Moreover, this optical switch offers an on-demand .lambda. switching capability to support, e.g., either SONET ring based or mesh configurations."

Thus, it is clear that the Walters reference discloses an all optical switch with MEMS switching fabric that is independent of bit rates and protocols.

The Isonuma reference fails to add to the Walters reference to suggest the requirements of claim 5. The Isonuma reference merely describes typical UPSR protection configurations for line interfaces in a SONET network. As stated in the Isonuma reference in paragraphs 14 and 15:

> "[0014] In accordance with the ring architecture, ADM transmitters 10a-10d of the kind depicted in FIG. 17 are connected in the form of a ring in the manner shown in FIG. 18. If a certain transmission path develops a failure or suffers a decline in quality, signals are transmitted in a direction that avoids this transmission path, thereby allowing communication to continue and assuring reliability and quality. [0015] FIG. 19 is a diagram useful in describing a UPSR (Unidirectional Path Switched Ring), which is one transmission line switching system available for SONET ring networks. A transmit node A on a synchronous multiplexed transmission line constructing the ring sends a signal in two directions, and a receive node C selects either of these signals to effect path

> switch or switch-back. In (a) of FIG. 19, the node A sends an input signal in two directions, namely (1) a direction that leads to node C via a node D and (2) a direction that leads to node C via a node B. The route that is usually selected is referred to as a "default path". If a failure develops in the transmission path from node A to node D, as shown in (b) of FIG. 19, during communication via the default path, as a result of which communication can no longer take place, node C selects the signal that arrives via node B, thereby allowing communication to continue. Such a path not selected normally but only in the event of a failure in the default path is referred to as a "non-default path". The functional element that performs such path switching is referred to as a "path protection switch".

The reference in paragraph 163 of the Isonuma reference cited in the Office Action to PDI-P codes was merely to this above described type of UPSR switching for SONET ring networks. In addition, the description in paragraphs 20 -22 of the Isonuma reference to the STS cross-connect unit 10A nowhere describes the steps, *inter alia*, of claim 5 of, "switching said payload and generating said Payload Defect Indicator - Path codes in each of said working and protect switch fabrics toward said at least one SONET add/drop multiplexer; receiving switched payload and said Payload Defect Indicator - Path codes from each of said working and protect switch fabrics at said at least one SONET add/drop multiplexer; analyzing said Payload Defect Indicator - Path codes and selecting said switched payload from either said working or said protect switch fabric as a working client payload based upon said analysis."

Furthermore, the combination of the Walters reference and the Isonuma reference fails to suggest the requirements of the claims. First, the combination would be inoperable since the Walters reference discloses an optical configurable switch (i.e., network node or OTS) can operate as an optical cross-connect (OXC) (also referred to as a wavelength cross-connect, or WXC), which switches individual wavelengths, and/or an optical add/drop multiplexer (OADM) while the Isonuma reference discloses an electrical STS cross-connect unit 10A for switching electrical signals at the STS or VT level. Second, even if combined, neither reference discloses or suggests using standard SONET add/drop multiplexers to provide both standardized customer interfaces to a cross-connect system and to switch fabric protection.

CONCLUSION

For the above reasons, the foregoing amendment places the Application in condition for allowance. Therefore, it is respectfully requested that the rejection of the claims be withdrawn and full allowance granted. Should the Examiner have any further comments or suggestions, please contact Jessica Smith at (972) 240-5324.

Respectfully submitted,

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